

ENQUIRY INTO THE  
ADVANTAGE OF  
INOCULATION  
1731

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INTO THE  
ADVANTAGE

Received by the first Eight Years

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L O N D O N :

Printed for J. ROBERTS, at the *Oxford Arms*  
in *Warwick-Lane.* 1731.

{Price Four Pence.

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# ENQUIRY

Into the first Eight Years

## INOCULATION.

**I**T is now about ten Years since the Inoculation of the Small Pox has been introduced among us : Most contrary at first were Mens Opinions about it ; some were confident the Practice would be of little Service, that the Distemper



temper could not be thus given, or if given, would not be less dangerous to the Patient ; others, that it would be so beneficial, as that no one could die of the Small Pox, who thus underwent it.

The Writers of either Side were not a few, and many Reasons both for and against the Practice were daily published.

However, the Inoculation went on, and the most impartial Judges were of Opinion, that how plausible soever the Reasons might be on either Side, that the Service or Disservice of it would best be known by observing the various Success of it, and then comparing the Danger  
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of dying by the Inoculation, with the Danger of dying by the Small Pox in the natural Way.

To this End the learned Doctors *Furin* and *Scheuchzer* have taken great Pains in getting in the Accounts of the Success of all the Persons inoculated for the first eight Years, as also of the Hazard Men underwent who had the Small Pox in the natural Way, and with Faithfulness not to be called in Question have published them.

By their Accounts it appears, that eight hundred and forty-five Persons have received the Small Pox by the Inoculation, and that seventeen of them, or only one Person

Person in fifty hath been suspected to have died by it.

That in the natural Way, out of eighteen thousand two hundred and twenty-nine Persons who have been sick of the Small Pox, three thousand and eight Persons, or one in six, hath died of it.

Their Conclusion is, that if these eight hundred and forty-five Persons had had the Small Pox in the natural Way, one in six of them might be reckoned to have died by it, that is, one hundred and forty, or rather, one hundred and forty-one Persons; that is, one hundred and twenty-three, or one hundred and twenty-four more than there



there died by the Inoculation, which Number of Lives they therefore think may actually be reckoned to have been saved by this Practice.

It is very easy to observe, that the Advantage here shown is not the real Advantage, but a supposed one, it is grounded upon a Supposition, that all those eight hundred and forty-five Persons must have undergone the Distemper, a Supposition no otherwise true than that all Persons whatever must undergo it, which, though indeed it hath been often asserted, is yet a Supposition, of which every Day's Observation in the Death of many Persons who never had this

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Distemper demonstrates the Falsehood.

Passing by then this supposed Advantage, let us enquire into the real one, which can only be known by comparing the Loss sustained by these eight hundred and forty-five Persons being inoculated, not with the Loss out of so many Persons who actually undergo the Distemper, but with the Loss out of as many who not submitting to the Operation, take their Chance of having it in the natural Way.

Were Bills of Mortality published for the whole Kingdom, as there are for *London* and *Westminster*, what this Loss would be, would

would easily appear, since by them it would be easy to see what Proportion the Number of those Persons who die of the Small Pox bears, to the Number of Persons who die of all other Distempers ; and, consequently, in any given Number, how many would probably die of this Distemper, or what would be the Loss out of the eight hundred and forty-five Persons.

But such Bills are only to be wish'd for ; till we can have more Light in this Affair, we must be contented with such as the *London* Bills afford us.

From a Table of Casualties for twenty Years, published by the in-



genious Mr. *Graunt*, it appears, that out of two hundred twenty-nine thousand two hundred and fifty-six Persons, there died of the Small Pox ten thousand five hundred and seventy-six, or one in twenty-one.

By a Table publish'd by Dr. *Furin* for forty-two Years, one Person in fourteen died of this Distemper.

And by a Table published by Dr. *Scheuchzer* for eight Years, those Years in which the Inoculation has been practised, one Person in twelve hath died of it.

Which of these Tables, or whether any of them may be made the  
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Standard of the Mortality of the Small Pox, will not easily be decided.

The Favourers of the Inoculation will think the last Table the most proper to be made the Standard, and in regard to Persons living at *London* not unjustly, but the Enemies of it will think, and perhaps with as much Reason, that even the first Table represents the Small Pox too severe, to be made the general Standard of the Danger of it in the whole Kingdom.

Till a better Standard can be fix'd, it may not, perhaps, be greatly amiss, to suppose the last Table the Standard of the Mortality of the  
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Small Pox at *London*, and the first Table the Standard for the Kingdom in general, and so proceed to enquire, what Benefit hath arisen from the Inoculation, as each of these Tables is made the Standard of the Danger of the Small Pox in the natural Way.

By the first Table, when one Person out of twenty-one die of the Small Pox in the natural Way, then out of eight hundred and forty-five Persons, there could only be reckoned to have died forty, and whereas there died out of the same Number by the Inoculation seventeen, the Lives of twenty-three Persons only can justly be reckoned to have been saved by this Practice.

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By the second Table, when one in fourteen died of it in the natural Way, sixty Persons out of the eight hundred and forty-five would have then died of it, and forty-three Persons more than there died by the Inoculation. And

By the last Table, when in the natural Way, one out of twelve died of this Distemper, seventy Persons out of the eight hundred and forty-five would have died of it, and fifty-three more than by the Inoculation.

By all these Accounts, it appears, that many Lives have been saved by this Practice ; but that  
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the learned Gentlemen in reckoning one hundred and twenty-three, or one hundred and twenty-four Lives, seem to have been mistaken.

But though fewer Lives are lost by the Inoculation than in the natural Way, yet as the Loss of them one way is almost present, and in the other at some distance of time, it cannot appear unjust to make a further Deduction on this Account from the Number of Lives saved by the Inoculation.

Out of fifty Persons inoculated at a certain time given, one of them is supposed to die of the Small Pox, and that presently.

Should



Should these fifty refuse to submit to the Operation, about four of them would die, and three Lives would be saved by the Practice.

But the time of these having the Small Pox is yet at a Distance ; suppose at the time given for their Inoculation, the Lives of these Persons to be each of the Value of thirty Years, or that these four Persons one with another were to live thirty Years exclusive of the Danger of their dying by the Small Pox ; suppose now each of these Persons were to live fifteen Years from the time given for their Inoculation before they had the Distemper, it is plain these four together

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gether would have lived sixty Years, the value of two Lives, before they died of this Distemper, which being deduced out of the four Lives that are lost out of the fifty in the natural Way, two only can be accounted to be lost out of that Number, and only one Life more than in the Way of Inoculation. V

What Deduction is to be made on this Account out of the Number of the Lives which are saved by the Inoculation cannot be determined, unless we could first determine, from a time given for their Inoculation, how long those Persons may be accounted to live, who are supposed to die at last of the Small Pox in the natural Way, and then the

the Deduction would be plain and easy.

Should these Persons then be supposed to live a second, a third, a fourth, or sixteenth Part of their Lives, let the Fraction, whatever it be, be multiplied by the Number of the Persons that are reckoned to die, as many Unites as the Product will be, so many Lives are to be deduced from those accounted to be saved by the Inoculation.

When I consider that few Persons are inoculated but when the Danger seems near of their having the Small Pox, I cannot well suppose them to live longer than one



fourth of their Lives before they have it, and when I consider that Persons chiefly inoculated are very young Persons, and that the Mortality of the Small Pox is mostly among those that are grown up, I am not inclined to think they should have it much sooner.

Let us then suppose that the Persons who die at last of the Small Pox live one fourth of their Lives from the time given for their Inoculation, and the Deduction from the Number of Lives saved by the Inoculation will be as follows.

According to the first Table, when forty Persons out of the eight hundred



hundred and forty-five die in the natural Way, each of these forty living one fourth of their Lives from the time given for their Inoculation, together equal to ten whole Lives ; thirty Lives only may more justly be said to be lost in the natural Way, and only thirteen Lives more than by the way of Inoculation.

According to the second Table, when sixty Persons die in the natural Way, these sixty living each one fourth, or together fifteen whole Lives ; forty-five Lives can only then be said to be lost in the natural Way, and but twenty-eight more than by the Inoculation.

According

According to the third Table, when seventy Persons die in the natural Way, these seventy living each one fourth, or seventeen whole Lives, fifty-three Lives can only then be said to be lost in the natural Way, and thirty-six only more than by the Inoculation.

Were this Distemper not an infectious one, I should here finish this Enquiry, and determine the Advantage to be on the side of the Inoculation. But it is most certainly otherwise, so that it will be proper to inquire farther, how far the Inoculation of these eight hundred and forty-five Persons may be supposed to have spread this Distemper,

stemper, and compare the Mischief probably arising from the increas'd Infection, with the Mischief that is prevented, or with the Loss of as many Lives as are accounted to have been saved by the Practice.

Were these eight hundred and forty-five Persons to take their Chance of having the Small Pox in the natural Way, it is easy to find out how many probably would have the Distemper and how many would escape it.

Upon the exactest Inquiry that could be made, and the best Accounts that have been given in, it appears that one Person in six  
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die, that hath the Small Pox in the natural Way.

In any given Number then six times the Number of the Persons who are accounted to die of this Distemper, should be accounted to undergo it, and the Remainder to escape it.

According to the first Table then, when out of the eight hundred and forty-five Persons, forty only are supposed to die of the Small Pox in the natural Way, six times forty, or two hundred and forty Persons only should be supposed to have this Distemper, and six hundred and five Persons to escape it.

According



According to the first Table then, when out of the eight hundred and forty-five Persons forty only are supposed to die of the Small Pox in the natural Way, six times forty, or two hundred and forty Persons only should be supposed to have this Distemper, and six hundred and five Persons to escape it.

According to the second Table, when sixty Persons are accounted to die, three hundred and sixty Persons should be supposed to have this Distemper, and four hundred and eighty-five to escape it.

By the third Table, when seventy Persons are reckoned to die of  
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it, four hundred and twenty-two Persons should be reckoned to have this Distemper, and as many to escape it.

The Mischief then arising from the Inoculation of these eight hundred and forty-five Persons, is the Mischief that arises from six hundred and five Persons having this infectious Distemper, who otherwise would probably have escaped it, or from four hundred and eighty-five, or from four hundred and twenty-two Persons, as each of these Tables is made the Standard of the Mortality of the Small Pox in the natural Way.

The Questions then to determine, whether the Inoculation be of Service,

vice, or not, according to the several Tables, are different, and these ;

According to the first, Which is better, or of more Service to Mankind, the saving of twenty-three Lives, or, according to the Deduction, of thirteen, or preventing the Mischief which ariseth from six hundred and five Persons having this infectious Distemper ?

According to the second, Which is better, the saving forty-three Lives, or, according to the Deduction, twenty-eight, or preventing the Mischief from the Infection of four hundred and eighty-five Persons ?

According to the third, Which is better, the saving fifty-three, or, if



the Deduction is to be allowed, thirty-six Lives, or preventing the Mischief from the Infection of four hundred and twenty-two Persons ?

These Questions may be differently answered, and the Practice accordingly either universally approved, or universally condemned, or perhaps allowed in one place, and condemned in another.

To say there is no Mischief to be feared from the increas'd Infections of such a Number of Persons would be a very bold Assertion, yet what the Mischief probably to be expected is, is very difficult to determine.

The general, if not universal way of having the Small Pox, is accounted  
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ed to be from Infection, and the Distemper now for some Years last past hath seemed to have been at a stand ; that is, the Mortality of it seems neither to have much increased or diminished, and the Number of Persons that undergo it to have been neither much greater or less.

If these Propositions are true, each Person who has the Small Pox may be supposed the Cause of another Person's having it.

Unless therefore the Mischief of Infection be less from a Person inoculated, than from one who has the Small Pox in the natural Way, the Mischief probably to be expected from the increas'd Infection will be as follows.

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By the first Table, when from the Inoculation six hundred and five Persons out of the eight hundred and forty-five have the Small Pox, who otherwise would have escaped it, these six hundred and five infecting or giving the Distemper to an equal Number, and one out of six of them dying according to the Standard of the Mortality of the Small Pox to those that have them, the Mischief from the increas'd Infection will be the Loss of the Lives of one hundred Persons.

By the second Table, when four hundred and eighty-five Persons have the Small Pox, who without the  
Inoculation

Inoculation would have escaped them, the same Number will be by them infected, and the Mischief will be the Loss of the Lives of eighty Persons.

By the third Table, when four hundred and twenty-two Persons have the Small Pox, who without this Practice would not have had them, an equal Number will be infected, and the Mischief from the increas'd Infection will be the Loss of the Lives of seventy Persons.

If these Suppositions may be admitted, the Inoculation for the first eight Years appears to have been of great Disservice to the World, since the Lives saved to the Persons



sons themselves inoculated fall very short of the Lives lost from the increas'd Infection.

Yet we have only now considered the Mischief arising immediately from the first Infection from the Persons themselves inoculated ; but the Mischief ends not here, the Persons thus infected may be accounted the Causes of a future Infection, and the Small Pox with increas'd Strength may descend to our latest Posterity.

*F I N I S.*



